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RAIL-ROAD NEWS.

Railroads in Portugal

Even Portugal has at length awakened to the necessity of railroads. The London Times contains an extract from the Report of a Committee appointed by the Portuguese Government to take the subject into consideration. Two roads are proposed; the Northern, extending from Lisbon, by the way of Santarem to Oporto, touching the Spanish boundaries at Valladolid, to connect with the road from Madrid to Irun; and the Eastern, running along the coast of the Albrantes, and thence to the neighborhood of Badajoz, where it will connect with the Madrid road. The first is to be some 350 miles long, and is estimated to cost $20,000,000; the other, about 165 miles long, cost $7,500,000. The latter is of the most importance, as it will open a direct communication between Lisbon and Madrid. A connection with Oporto can easily be made afterward by a branch from Santarem.

Railroads in Spain.

The Spanish provincial correspondence and newspapers are full of accounts of railroads and projects of railroads, by means of which every province looks forward to have its resources developed and its riches increased.—Cadiz hopes to see her fallen trade revive; Barcelona to drive even the English smuggling trade in cottons out of the market. The semi-official organ of the ministry avails itself of the enthusiasm awakened on the subject by representing the present ministry as the Government whose special mission it is to endow the country with these means of communication, which are expected to change the face of Spain, and put her on a level with the other nations of Europe.

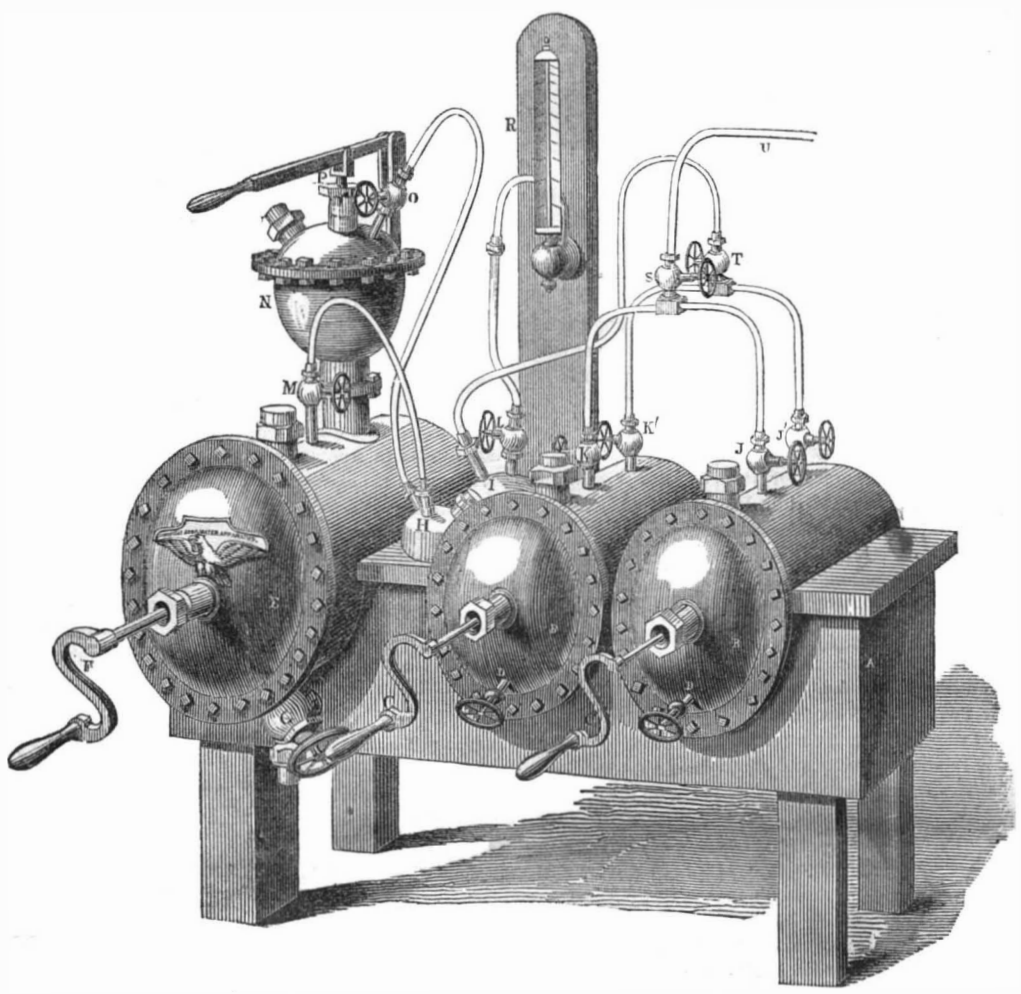
Lookinglasses for Locomotives.

The practice of placing a lookinglass before the engineers in a locomotive, inclined in such a way as to enable him to see the whole train behind him, without turning, is gradu ally becoming universal in Europe. Many roads in France have adopted the plan, the greater part of those in Austria have tried it successiully, and the locomotives on the line between Brussels and Antwerp have been just fitted with the necessary reflectors.—Should a car or any portion of the train become detached, should an axle break, or, in short, any accident happen, the engineer sees it at once.

Early Printing.

It is related that Faust, of Mentz, one of the many to whom the honor of having invented the invaluable art of printing is ascribed, having carried some of his Bibles to Paris, and offered them for sale as MSS.; the French, after considering the number of the books and their exact conformity to each other, and the best book writers could not be so exact, concluded there was witchcraft in the case, and by either actually indicting him as a conjuror, or threatening to do so, they extorted the secret, hence the origin of the popular story of the devil and Dr. Faustus.

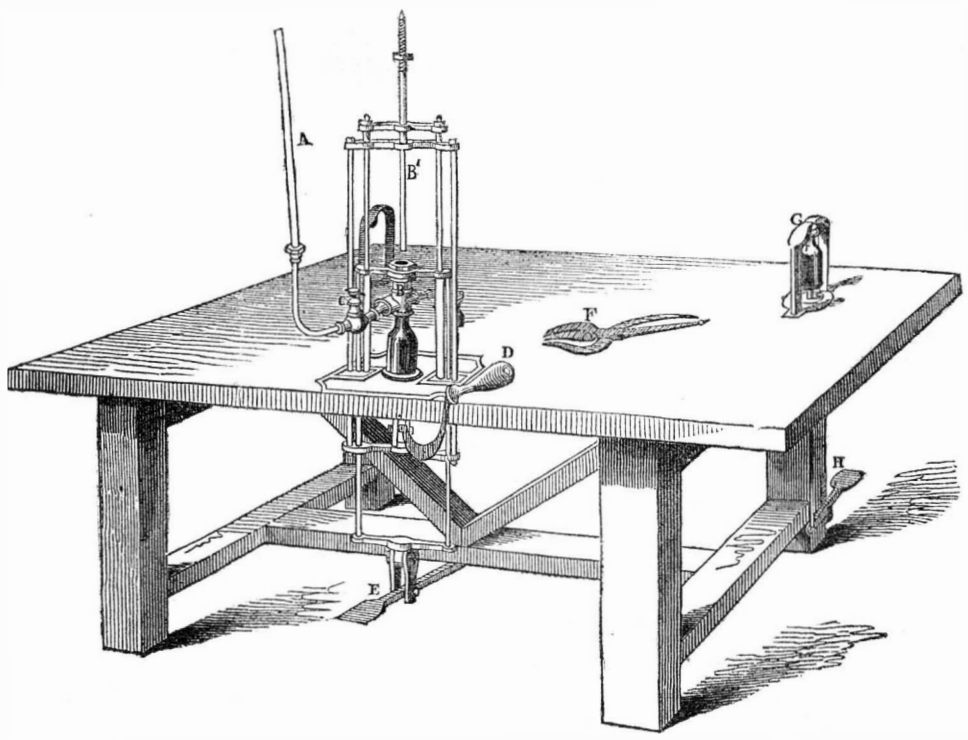
GEE'S SODA WATER APPARATUS.---Fig. 1.



The accompanying engravings are perspective views of the Premium Soda Water Apparatus of William Gee, New York City. The principal element of soda water—that which imparts to it those sparkling agreeable qualities—is carbonic acid gas. This gas can be generated by pouring the oil of vitriol on marble dust or whiting. Marble is a carbonate of lime; the lime, when the vitriol is poured upon it, parts with its carbon and oxygen—carbonic acid gas is given off, and the sulphate of lime is the residue. The carbonic acid gas thus generated is employed to impregnate what is known by the name of soda water. It is also carbonic acid gas which imparts the agreeable sparkling qualities to wines and lively ales; although it is a gas always injurious to life when taken into the lungs, it conduces to health when taken into the stomach in quantities not deemed imprudent.

Figure 1 is the apparatus for generating the gas; A is the frame; E is the vessel for generating the gas; N is the vitriol chamber; H and I are vessels of water through which the gas passes, and is washed from impurities. R is a pressure gauge to show the pressure of the gas on the apparatus. B B are the foun-

Figure 2.



tains which contain the soda water. M O L K K J J S T are small valves for stopping and letting on the gas; D D, in front of the fountain vessels, D D, are cocks to blow off the waste gas and clear the fountains. G is the pipe by which the residue of the charge is taken out. P is the lever for raising the valve inside of the chamber, N, to let the sulphuric acid into the vessel, E, to unite with the carbonate of lime, to produce the gas. The gas, by its expansive pressure, rushes into the washing vessels, H I, and then passes into the

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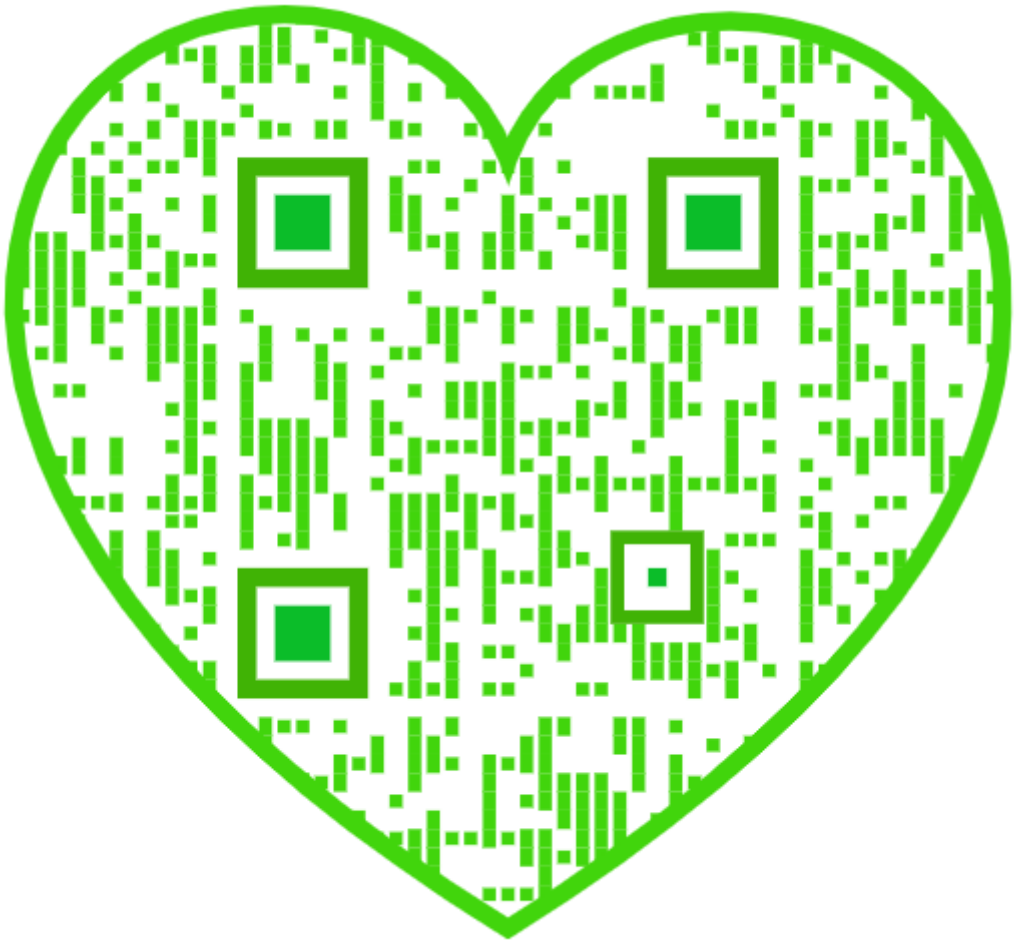

fountains which contain the soda water. This apparatus can make aerated waters in imitation of any mineral spring.

Figure 2 is the apparatus for bottling the soda water. The soda water passes through a gutta percha tube, U, from the fountains, B B, fig. 1, to A, fig. 2, and to the bottle cylinder, B. The foot must then be placed on the treadle, E, and pressed down; the lever, D, is then raised, which elevates the piston, B′, as shown in the figure, so as to put the cork into the cylinder, B. The lever, D, is then pushed down so far that the lower part of the cork may be a little above the orifice for the admission of the water, so as to let the air which is in the bottle escape; the soda water is then turned on at C, fig. 1, until the bottle is filled to the proper height. The cock, C, is then closed, and the cork is at once forced into the bottle by pushing down the lever, D, and raising the bottling cylinder. The lever should remain still, until the bottle is seized by the tongs, F, and placed by a boy under the *tier*, G. By pressing with the foot on lever H, the cork is held down in G until it is firmly tied with cord or wire. The stroke of the piston, B′, may be lengthened or shortened by turning round the nut; this is to suit bottles of different sizes. The generating apparatus has been highly approved of by those who are excellent judges. The pressure gauge, the cleaning-out pipe, G, the valves, C C, and those M, O L, K K′, J J′, S T, are claimed as new improvements. A medal was awarded for this apparatus at the last Fair of the American Institute. These apparatus are manufactured by Mr. Gee at No. 66 Gold street, this city.

MISCELLANEOUS.

For the Scientific American.

Davison's New Engine and New Motor.

About ten years since, during my researches and studies in relation to steam and other artificial motive power, in connection with other improvements and inventions I was then engaged in originating, I discovered a principle by which I conceived that a motive power might be produced at an expense so trifling as not to be worth estimating as compared with the expensive and hazardous means then and at present, in use for producing motive power by steam.

By long continued observation, reflection, and experiments, I proved this discovery, and became fully convinced that the principle on which it was founded was correct. I then immediately commenced to invent the means of successfully applying this new motive power to the useful purposes of life. During the period of the last ten years, I have been assiduously engaged in experimenting upon this new principle, and inventing and trying the means of successfully applying it where steam or any other artificial power now is, or can be used. I have fully succeeded in realizing my highest expectations, and will here state to the public that an artificial motive power, to any extent required, can be produced by well known laws of nature at a mere nominal expense, without any danger from explosions, &c., now so severely felt by the community, in the use of steam as now generated and used. With what success I have devoted my time and abilities to the originating and perfecting this new engine and motive power in connection with my other improvements, will be made apparent to the public in a short time, which will be as soon as my rights can be properly secured in this invention, by patent and otherwise, in this country and in Europe.

The engines and machinery requisite to apply this new motive power, on vessels for the ocean, to locomotives, and to stationary machinery, will be much lighter, more simple, and less expensive than the present steam engines. There will be no danger from explosions, and they can be readily managed by any person with perfect safety. So that, from costing comparatively nothing for a safe and ready power, it can be applied not only to ocean and river vessels, locomotives, factories, and stationary machinery generally; but every farmer can have a small engine adapted to plowing and harvesting, and the general work upon a farm to which an artificial motive power can be applied. It can also be advantageously used to raise water to irrigate dry land and supply cities and towns, and can be successfully applied to propelling carriages on common roads, in cities and in the country. In short it is applicable to every purpose where an artificial motive power can be used.

Vessels for the ocean built upon my new model, by which the resistence of the water to the rapid movement of the vessel is diminished one-third for any given amount of tonnage, and such vessels being propelled by his new motive power and new engine, by which as great a power can be applied as the vessel will bear, without a corresponding increase in expense for fuel, and increased weight and cost of machinery, as with the present steam engine, can be run across the Atlantic in less than a week, at so small an expense for the motive power as not to be worth calculating, and the tonnage now taken up in steamships with fuel will be saved for freight and passengers.

Vessels for the ocean propelled by this new engine can be run to any part of the world without the inconvenience and expense of stopping for fuel, as in the present steamships, as fuel enough can be carried in a small space for a voyage around the world.

It is proper in this connection to state to the public, that the motive power of this new and simple engine will be produced in a different way from any plan heretofore known *and will be obtained in part through the agency of heat and steam, combined with the all-pervading pressure of the atmosphere, acting upon a vacuum produced and re-produced by simple, efficient, well-tried, and comparatively inexpensive means.* Respectfully,

DARIUS DAVISON,
374 Broadway, N. Y., July 15th.

Useful Information to All.

TREATING THE APPARENTLY DROWNED.—Lose no time. Avoid rough usage. Do not hold up the body by the feet. Do not roll it. Do not inject tobacco smoke into the nostrils, as some ignorant persons have done.

Send quickly for medical assistance; but do not delay the following means:—1. Convey the body carefully, with the head and shoulders supported in a raised position, to the nearest house. 2. Strip the body and rub it dry; then wrap it in hot blankets, and place it in a warm bed in a chamber. 3. Wipe and cleanse the mouth and nostrils. 4. In order to restore the natural warmth of the body—I. Move a heated covered warming-pan over the back and spine. II. Put bladders or bottles of hot water, or heated bricks, to the pit of the stomach, the arm pits, between the thighs, and to the soles of the feet. III. Foment the body with hot flannels; but, if possible, IV. Immerse the body in a warm bath, as hot as the hand can bear without pain, and this is preferable to the other means for restoring warmth. V. Rub the body briskly with the hand; do not, however, suspend the use of the other means at the same time.

In order to restore breathing, introduce the pipe of a common bellows into one nostril, carefully closing the other and the month; at the same time drawing downwards and pushing gently backwards, the upper part of the windpipe, to allow a more free admission of air; blow the bellows gently, in order to inflate the lungs, till the breast be a little raised; the mouth and nostrils should then be set free, and a moderate pressure made with the hand upon the chest. Repeat this process till life appears. Electricity to be employed early by a medical assistant. Inject into the stomach, by means of an elastic tube and syringe, half a pint of warm brandy and water, or wine and water. Apply sal volatile or hartshorn to the nostrils.

IF APPARENTLY DEAD FROM NOXIOUS VAPORS, &c.—1. Remove the body into a cool fresh air. 2. Dash cold water on the neck face, and breast frequently. 3. If the body be cold, apply warmth, as recommended for the drowned. 4. Use the means recommended for inflating the lungs, as in drowning. 5. Let electricity (particularly in accidents from lightning) be early employed by a medical assistant.

IF APPARENTLY DEAD FROM APPOPLEXY.—The patient should be placed in a cool air, and the clothes loosened, particularly about the neck and breast. Bleeding must be early employed by a medical assistant; the quantity regulated by the state of the pulse. Cloths soaked in cold water, spirits, of vinegar and water, should be kept applied to the head, which should be instantly shaved. All stimulants should be avoided. In cases of *coup de soleil*, or strokes of the sun, the same means to be used as in appoplexy.

ERUPTION ON THE FACE.—Dissolve an oz. of borax in a quart of water and apply this with a fine sponge every evening before going to bed. This will smooth the skin when the eruptions do not proceed from an insect working under the cuticle.

Many persons' faces are disfigured by red eruptions, caused by a small creature working under the skin. A very excellent remedy is to take the flour of sulphur and rub it on to the face dry, after washing in the morning. Rub it well in with the fingers, and then wipe off with a dry towel. There are many who are not a little ashamed of their faces who can be completely cured if they follow these directions.

Elementary Mechanics---Water Power.

When mechanics were first brought under the cognizance of mathematical investigation, a bitter dispute soon arose respecting the measure of the force of a body in motion,—Liebnitz and Newton were the leading opponents, and the smaller philosophers of Europe ranged themselves under the separate banners of these leaders. Liebnitz contended that the true measure is found by the multiplication of the weight of the body into the velocity squared ($W \times v^2$), while Newton contended the true measure was the weight of the body multiplied into its velocity ($W \times v$). The controversy was bitter on both sides, and lasted for half a century, and to the no small discredit of those who boasted of the self-evident principles of mathematics,—the debate was dropped, not ended.

In many elementary works on mechanics there is still exhibited the same foggy appreciation of this measure of force, which has been found of no importance so far as the effect of a machine is concerned. The operation of a water-wheel—its effective force—must be measured by a different standard from that of a projectile. The unit of a horse-power of a machine is 33,000 lbs. (or 528 cubic feet of water) lifted one foot high in a minute. This definition of the power of a machine is founded on the fact that the resistance remains the same at every new point of space, therefore the pressure must be exerted afresh at every new point through which the resistance is to be overcome. If it requires a certain amount of water power to saw through one inch of a log, it requires just double the amount to saw through two inches of the same. The power of all machines is represented by the weight, or pressure, multiplied into the velocity. Thus, for example, if a body of water, w, fall through a height expressed generally by h, for feet, its mechanical efficiency will be indicated by $w \times h$—the weight multiplied into the height. A stream of water which discharges 10 cubic feet per second over a fall of 20 feet, has a mechanical force of about 11·272 horse-power. This is found by the following rule:—a cubic foot of water is 62½ lbs, therefore $10 \times 62\frac{1}{2} = 625$ lbs., falling 20 feet every second; $625 \times 20 \times 60 \div 33{,}000 = 15{\cdot}17$, nearly. This is the laboring force of the water; some wheels may be so constructed, by improper bearings, &c., as to absorb nearly the whole power of water. Two wheels may be running together, and both alike, yet one may, from some defect, give out 10 per cent. less power than the other. The true test of the full value of a wheel can only be known by testing its power, yet, in principle, some are plainly superior to others, without testing them any further than merely examining their principles of action. To find out the value of a fall of water, the quantity of water discharged in a given time must first be ascertained. The following are the rules laid down by Templeton for ascertaining the quantity of water discharged through openings:—

If the water flow from under the sluice, multiply the square root of the depth in feet by 5·4, and by the area of the orifice, also in feet, and the product is the quantity discharged in cubic feet per second.

Again, if the water flow over the sluice, multiply the square root of the depth in feet by 5·4, and two-thirds of the product multiplied by the length and depth, also in feet, gives the number of cubic feet discharged per second, nearly.

EXAMPLE 1.—Required the number of cubic feet per second that will issue from the orifice of a sluice 5 feet long, 9 inches wide, and 4 feet from the surface of the water.

$\sqrt{4} = 2 \times 5{\cdot}4 = 10{\cdot}8$ feet velocity;
and $5 \times {\cdot}75 \times 10{\cdot}8 = 40{\cdot}5$ cubic feet per second.

EXAMPLE 2.—What quantity of water per second will be expended over a wear, dam, or sluice, whose length is 10 feet, and depth 6 inches?

$\sqrt{{\cdot}5} = {\cdot}2236 \times 5{\cdot}4 = \frac{1{\cdot}20744 \times 2}{3} = {\cdot}80496$ feet velocity; then $10 \times {\cdot}5 = 5$ feet, and ${\cdot}80496 \times 5 = 4{\cdot}0248$ cubic feet per second nearly.

In estimating the power of water-wheels, half the head must be added to the whole fall, because 1 foot of fall is equal to 2 feet of head; call this the effective perpendicular descent; multiply the weight of the water per second by the effective perpendicular descent and by 60; divide the product by 33,000, and the quotient is the effect expressed in horse-power.

EXAMPLE 1.—Given 16 cubic feet of water per second, to be applied to an under-shot wheel, the head being 12 feet; required the power produced.

$12 \div 2 = 6$, and $\frac{6 \times 16 \times 62{\cdot}5 \times 60}{33000} = 10{\cdot}9$ horse-

EXAMPLE 2.—Given 16 cubic feet of water per second, to be applied to a high breast or an over-shot wheel, with 2 feet head and 10 feet fall; required the power.

$2 \div 2 = 1$, and $\frac{1 \times 10 \times 16 \times 62{\cdot}5 \times 60}{33000} = 20$ horse

Only about two-thirds of the theoretical results is calculated for the actual power of an over-shot wheel, and it is a good wheel which gives this. The co-efficient is 5·4, and perhaps this is right; the correctness of it depends altogether on experiments which have been made by a number of persons, and which will be held to be a standard until proven to be incorrect.

Does a Man Own Himself.

Herbert Spencer, in his work entitled "Social Statics," refutes Proudhon's celebrated maxim, "Property is robbery," in a highly original and curious manner. "If all property is robbery," says Mr. Spencer, "then, among other consequences, it follows that a man can have no right to the things he consumes for food. And if these are not his before eating them, how can they become his at all? As Locke asks, When do they begin to be his? when he digests? or when he eats? or when he boils? or when he brings them home? If no previous acts can make them his property, neither can progress of assimulation do it; not even their absorption into the tissues. Wherefore, pursuing the idea, we arrive at the conclusions, that, as the whole of his bones, muscles, skin, &c., have been thus built up for nutriment, not belonging to him, a man has no property in his own flesh and blood—can have no valid title to himself—has no more claim to his own limbs than he has to the limbs of another—and has as good a right to his neighbor's body as his own."

Quick Work.

Hussey's Reaping Machine, in an experiment on Wednesday last, in Maryland, among a company of farmers, cut twenty-five acres of wheat in a day, requiring twelve binders to keep pace with it, the wheat operated on was about five feet high, and very thick and heavy.

Coffee and Chicory.

The British Government has determined to prevent the mixture of coffee and chicory, which has been so common of late years, and which has so seriously interfered with the consumption of the first named article.

This is a queer way of taxing the British people; the chicory is a native product, the coffee foreign. It shows us what a queer science political economy is.

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On Plastering.

I read with some interest the article on plastering in the Scientific American of last week. The walls of houses in our country receive a prime coat of what is called *plaster*, without any plaster being used. This prime or brown coat is composed of sand, lime, and cow's hair. The finishing coat of plaster, for walls, contains no hair. It is generally *hard finish*, being composed of plaster of Paris and some fine marble dust. Many walls are finished with a white lime coat, but all rooms of the better class houses are finished with a heavy coat of real plaster.

I write this to make some remarks about common defects in the modes of putting up and plastering partition walls. It is very common to see the interior plastering of rooms cracked and blistered; the blame is generally attached to the plasterer for bad work, while he may be entirely blameless. If green laths are put on, they will often shrink so much afterwards as to crack the plaster. A nail should be put into every lath at top and bottom. Great care should be exercised in having a good primary coat of plaster. If the plaster of Paris were cheaper than it is, all the coats should be laid on with it, but as it is more expensive than lime and sand, the latter quality of plastering should be carefully laid on, and carefully made up. It very often happens that plaster is defective because not well mixed. I have seen a laborer mix up his lime, sand, and hair, apparently for the very purpose of making bad plaster. The way was, to slack all the lime at once, and while it was steaming, seething hot, throw in the hair, stir them together with a hoe, and then mix the sand, lime, and hair to the proper consistency. The lime for plastering should be slacked, and cold, before the hair is put in. If it be hot it will burn the hair up, and its binding qualities—that for which it is used in plaster, like the straw in the old bricks of the Israelites—will be destroyed, for lime, being of an alkaline nature, dissolves animal substances with great rapidity, when hot. There are few plasterers, and scarcely any laborers, who know this to be a fact, although their noses can easily detect the burning of the hair when flung upon the hot lime. I like to see every man well acquainted with every thing connected with that occupation which he follows. If he be a laborer let him be an intelligent one; this is all that can be expected of him, and it is just as respectable to have a knowledge of the nature of lime as of gold.

The prime coat of plaster should never be very wet, and it should not be allowed to dry too fast. Before the second coat is put on, the first should be perfectly dry, and a careful examination made of every part of the wall, for defects; if there be a single defect in the first coat, it should be remedied before the second is put on. If this be not done, a crack may soon be expected there. It is well to use a good quantity of clean dry sand for the prime coat, so as to have but little shrinkage. The outer coating, it made of plaster of Paris, does not crack unless there is a defect in the wall. It sets quickly after being laid on, and does not shrink. There is a great amount of carelessness generally displayed in plastering walls; this is owing more to the character of the operatives than ignorance of their business. Walls should be plastered upon the moral principle of doing good work, not the quantity of it; the latter is the general ruling principle, and for which the contractors are much to blame.

A Plasterer.

Potts' Process for Sinking Piles.

On page 161, Vol. 5, Scientific American, we published an illustrated description of Potts' Pneumatic Pile Driving System, which was introduced, two years ago, from England by C. Pontez. Since that time we have heard nothing about it, excepting a few experiments which were made at the Brooklyn Navy Yard. We do not know whether a single bridge has been built in our country resting upon such piles, and yet to us the invention appeared then, and does now, to be a good one. We do not know what have been the reasons of its failure in our country. In England it has met with more favor. As we have some readers now who may not be acquainted with this process, we will describe it for their information, as briefly as possible. Instead of building coffer dams, the bridge is built on hollow iron cylinders. Each cylinder is sunk by forming a vacuum in it, with large air pumps, when the sand, &c., flows up through the interior, and the pressure upon and around the cylinder forces it down with great rapidity. When this method was first introduced it was treated with considerable levity, for it was not so easy to understand. The cylinders are not sunk by the mere pressure of the atmosphere, but by the excavating process; if the earth, &c., did not flow up through the cylinder, it would not sink. These cylinders are sometimes used as diving bells, by affixing a cap on a cylinder, then making the air-pumps force in air instead of extracting it. Men go down in them and remove stones, &c.

Spirit of the Scientific Press.

Forgery of Stamps.—In the London Mechanics' Magazine there is a letter from Henry Brown, of London, detailing a method of forging raised stamps, which are so much employed in the British Revenue system. He communicated with the Inland Board of Revenue, informing the members of it, how this could be done—an act for which he should have received the thanks of the Board, but instead of that, with that gruffiness which, we regret to say, is so characteristic of those in office in the British Government, the Board almost promised him transportation for his pains. He publishes the plan; it is as follows:

"To take an impression of any stamp raised or imprinted—sunk on paper—cut a piece of card board about half an inch in breadth, and with this form a ring just the dimension of the impression to be taken; then pour within the said ring, which surrounds the stamp, melted fusible metal. The carding will prevent the metal from running away, and in a few minutes it will cool and take the impression without the slightest injury to the paper from which it is taken. Fusible metal is a compound of eight parts of bismuth, five of lead, three of tin, which liquifies at 212°, and below that if one part quicksilver be added."

Kirkwood's Analogy.—Prof. Cherriman, of the University of Toronto, C. W., in an article in the last number of Silliman's Journal, offers a number of considerations which have led him to conclude that "Kirkwood's Analogy," which has been published as the new discovery of a law of nature, in relation to the revolution of the planets on their axes, "is not an established physical fact." Some time ago Prof. Loomis, of the New York University, published his views, expressing the same opinions. Out of ten primary bodies (counting the asteroids as one) there are no less than seven which fail to be supported by the Analogy, and the three left—Venus, the Earth, and Saturn,—these, Prof. Cherriman thinks, do not agree with sufficient nearness to coincide with the Analogy. The "Analogy," is stated to be a law which governs the revolutions of the planets on their axes, as Kepler's discovery is the enunciation of the law which governs the planets in their revolutions round the sun. The analogy is this:—"The square of the number of a primary planet's days, in its year, is as the cube of the diameter of its sphere of attraction in the nebular hypothesis." Kirkwood's paper was read before the American Association for the Advancement of Science, in 1850, and notice was taken of it by Sir David Brewster, at the meeting of the British Association for the Advancement of Science. Mr. Kirkwood has received much praise for his discovery. Who is right?

Something More About Ventilating Cars.

Railroad cars cannot be well ventilated unless the air in the inside is pure and free from dust, smoke, and sparks, which are the evils now justly complained of. The improvement for the ventilation of railroad cars patented by Mr. Hamilton and assigned to Mr. Goodyear, which consists of a number of slats like those of blinds placed at an angle horizontally on the outside of the window of a car, and that of Henry M. Paine of Worcester, Mass, which was illustrated on page 244, this volume of the Scientific American, has been patented, we perceive, in England, in the name of Moses Poole, the venerable patent agent in London. We do not know what American gentleman employed Mr. Poole, and furnished him the claims; they are the subjects of two patents in America, by two different persons. We have never had an opportunity of riding in a car to which this principle of ventilation has been applied; we know that a partial vacuum must be formed on the outside of the window owing to the philosophical principle embraced in the angle at which the window is set out; this will cause the current to flow out from the inside and keep out the dust; but, as the air to supply this current is brought in from the top of the car, it strikes us that the smoke from the locomotive must rush in, forming part of the current. If this is the case some remedy may be furnished to make this mode of ventilation more perfect or it will not answer. The plan, however, to produce the outward flowing current, is the most simple yet brought forward.

Cholera.

The public press records the appearance and prevalence of epidemic cholera, at various places in the southern and western portions of our country, and a recent outbreak on board the steamship Philadelphia, on her passage from the Isthmus to Havanna, has increased public anxiety, lest another visitation of the dreaded and fatal pestilence should reach our Atlantic cities. Thus far, however, we have been preserved from the usual precursors of cholera, though the season is somewhat advanced, except in a few rare instances, which are looked upon as sporadic. Our safety, so far as second causes are concerned, only lies in the utmost vigilence to guard against those sources of the disease known by past experience to develope it. Temperance in all things, cleanliness, pure air and water, and especial attendance to the condition of the poor, who are crowded in unhealthy habitations, and but illy supplied with the comforts of life, are found to be the best preventives. Sanitary measures should not be delayed until the appearance of the epidemic, but we should bestir ourselves in advance, and thus anticipate the calamity, by preparing against it. In this city we hear very little of such precautions.

[The above is from the New York Medical Gazette. We hope the suggestions will meet with a prompt response which will speak in deeds. The streets of this city, (N. Y.) never were in a more filthy condition. Our city is a dirty one, none worse. It is greatly to be regretted that we have such a set of inefficient office holders. They should all be sent to Australia to dig gold—we mean in mud. It is to be hoped that they will be shamed into some one decent act before their term of office expires.

Another Planing Machine.

The Detroit Free Press notices a new planing machine invented by Mr. J. Wilder, of that city, who is quite famous as an inventor. It states that it is capable of finishing, in a workmanlike manner, 3,500 feet per hour. It is not over 10 feet in length, and between the sides, which are cast-iron, there is an inclined plane, upon which the board of any width is run under nine knives, which are fixed in a frame by strong screws. These knives are very similar to the edge of a common plane, and shaves off the whole length of a board. The machine is moved by a band fastened to a steam engine, which moves a crank attached to the outside of a cam-wheel. As the arm of this crank moves to and fro, the piece to be smoothed is brought under the graduated knives by the forward movement, and held in its place by "dogs" at each extremity when it reverts.

Marked Fish.

The Scotch commissaries of fisheries have been adopting an ingenious device for learning the migrations of the salmon. They have marked a large number of the fish, hatched from the spawn, deposited last year in the Tweed, by placing around them a belt or ring of india rubber numbered and dated. One of the fish was caught, two days after being thus marked, and let go, a hundred miles from the mouth of the Tweed. All fishermen, taking such marked fish, are desired to take note of the weight, the place, and date of capture, and various other particulars named in the directions. The idea is a novel and amusing one.

A Merciful Man is Merciful to his Beast.

During some of the very hot days which was experienced in this city and vicinity recently, a carman had an awning spread over his horse to protect it from the sun. One end of the awning was supported upon the top of the front stakes of his cart, and the other end upon the hames of the harness.—There was sufficient room between the animal's back and the awning for the circulation of air, and the shade of it effectually protected the beast from the heat of the sun. Such an act shows the considerate and humane man, and contrasts very strongly with the conduct of some individuals we have seen in our most public streets towards their dumb beasts.

Sugar Cane from the East.

The Republic says, the commander of the East India Squadron, acting under instructions from the Secretary of the Navy, has procured and sent home roots of the sugar cane from Salanga, and the Straits of Malacca, which is believed to be superior to the cane now grown in the Southern States of the Union. Several boxes of roots, in a growing state, arrived in the Marion at New York, and have been turned over to the Department of the Interior for distribution among the sugar planters at the South.

Hail Storms.

Some very severe hail storms have visited the northwest parts of New York. Oswego County appears to have come in for a severe visitation. It is not singular, but it is a subject of wonder, that hail storms accompany thunder and lightning; it is a law of nature, however, well understood, and the hail is formed upon the same principle as the production of ice by the formation of a vacuum, and the absorption of heat to fill it up again.

Gold in Jamaica.

The Kingston, (Jamaica) Journal publishes a letter from Clarendon, which asserts that gold exists in the mountains of Jamaica, and that the discovery was made by a negro who purchased some land on the Pearce river coffee plantation.

We do not know where we shall have the next gold discoveries, perhaps in the Turtle Islands.

Case of Asphyxia.

Near Toronto, C. W., there is a girl named Annabella Hannah, about 11 years of age, who has been in what some people call a trance, for the past 17 months. The case is exciting much interest among the ignorant people in that quarter, and all those who are liable to be led away by spiritual rappings, &c.

Electric Fire Alarms.

Propositions have been made to the Common Council of this city (N. Y.), to construct a telegraphic alarm system like the one in Boston which has been illustrated and described in our columns. It will be a great wonder if our Common Council adopt such a useful improvement. The people of Boston are certainly far ahead of us in respect to the organization and management of their Fire Department.

Platinum Wire.

Dr. Wallaston, says Dr. Lardner, in his Hand book, obtained platinum-wire so fine, that 30,000 pieces, placed side by side in contact, would not cover more than an inch. It would take 150 pieces of his wire bound together to form a thread as thick as a filament of raw silk. Although platinum is the heaviest of the known bodies, a mile of this wire would not weigh more than a grain. Seven ounces of this wire would extend from London to New York. Fine as is the filament produced by the silkworm, that produced by the spider is still more attenuated. A thread of a spider's web measuring four miles, will weigh very little more than a single grain. Fvery one is familiar with the fact, that the spider spins a thread or cord by which his own weight hangs suspended. It has been ascertained that this thread is composed of about 6,000 filaments.

The Sovereign of the Seas.

This is the name of a new clipper ship built by Mr. McKay, of Boston, and at present lying at our docks taking in her cargo for San Francisco. She is a most beautiful clipper.

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NEW INVENTIONS.

Flying Bridge for Railroads.

C. B. Hutchinson, of Waterloo, N. Y., who is quite an inventive genius, has invented and taken measures to secure a patent for a valuable improvement on Railroad Bridges for navigable waters. The object of the invention is to have a bridge perfectly open and free at all times for vessels to pass, except the few minutes required for a train passing over, and to carry over trains expeditiously and safely. A certain number of piers or abutments are built in the river, with spaces between them for the passage of vessels; instead of having a stationary platform or roadway extended across on the piers, he employs a flying or running platform, which carries the train, spanning and springing over the successive spaces between the piers, from the one side to the other. There are tracks of rails on all the piers, and on the flying platform there are wheels to run on the tracks, like a long railroad car. The length of the flying platform is in proportion to the width of the spaces between the abutments, so that it will be impossible to overbalance it while springing over from one pier to the other like a sliding *draw*. The flying platform is stationary at one side or the other, when a train is not passing. It is to be propelled across by having stationary power on itself, or to have it so constructed that the locomotive of a train may propel it across. It may be called "a flying railroad bridge."

Barrel Machinery.

Mr. Hutchinson has also taken measures to secure a patent for another good improvement on machinery for jointing staves and cutting the heads of barrels. His improvement consists in the employment of adjustable screws, by which the jointing knives and part of the bed of the machine may be curved or bent, and the staves jointed to suit barrels of any required bilge. He also employs a circular disc with cutters attached to it, in combination with circular clamps, whereby barrel heads are cut out in a superior manner and faster than heretofore.

Improved Railroad Car Wheel.

George Douglass and Edward Jones, of New York city, have taken measures to secure a patent for an improvement in railroad car wheels, made of wrought-iron. The nature of this improvement consists in forming the shell of the wheel upon which the tire is shrunk, of a ring, two side plates, a hub, and bands. The ring upon which the tire is shrunk is composed of a T shaped iron made with the top of the T outwards, the side plates consist of two discs made convex on their outer and concave on their inner sides, and fitting closely within the shoulders of the T shaped ring, and up to the ridge forming the tail of the T. The hub is made with shoulders against which the side plates rest, and is fitted in each of the side plates, in such a manner as to prevent its turning. Its ends project through the hub, and bands are shrunk upon them to keep the parts firmly together.

Improvement in Shingle Machines.

Simon Ingersoll of New York City, has taken measures to secure a patent for an improvement in shingle machines. The shingles are cut from the block, and they receive the requisite bevel at one operation. There is a frame which has a rectilinear motion, and has a knife on its upper board which cuts or splits a strip from the under surface of the block; the said strip, after being cut from the block, is thrown by means of a clasp acted upon by a spring, on the lower board of the frame; it then passss under a stationary cutter which gives the aforesaid strip the required bevel, forming it into a shingle.

Interesting Patent Case.

SEWING MACHINE.—U. S. Circuit Court, Judge Sprague presiding.—The plaintiff was Elias Howe, Jr., of Cambridge, Mass., the defendent was Wm. Bradford of New Bedford, Mass., the machine of the defendant was Lerow & Blodgett's rotary, which has been illustrated in our columns; it was asserted to be an infringement of Howe's Patent. The trial lasted for three weeks and was decided on the 12th inst., in favor of Howe, and on the point claimed of using two threads, a needle, and a shuttle. The case was very closely contested. For the plaintiff—Hon. Rufus Choate, Joel Giles, and J. D. Ball.

For the defendant—Ambrose L. Jordan and Keller of New York, and A. B. Ely, of Boston.

Trials of Reapers and Mowers.

A large assemblage of agriculturists recently took place at the Woodside Farm, Springfield, Ohio, for the purpose of witnessing the competition for the medals offered by the State Agricultural Society, for the best mowing and reaping machines. After an animated contest, the gold medal for the best reaper was awarded to Densmore's Self-Reaper, and the silver medal for the next best, to Hussey's Improved Reaper. The gold medal for the best mower was awarded to Ketchum's Buffalo Mower, and the second medal to Hussey's Urbana.

Another American Yacht Victory.

A yacht named the "Truant" has won the prize at the recent Regatta of the Model Yacht Club, of Birkenhead, opposite Liverpool. Four yachts started, the Truant beat them all, nearly two miles to one. It is the property of Capt. Grinnell, of this city.

An electric telegraph line is in the course of erection between this city and Sandy Hook.

IMPROVED RAILROAD SEAT AND SOFA.

Figure 1.

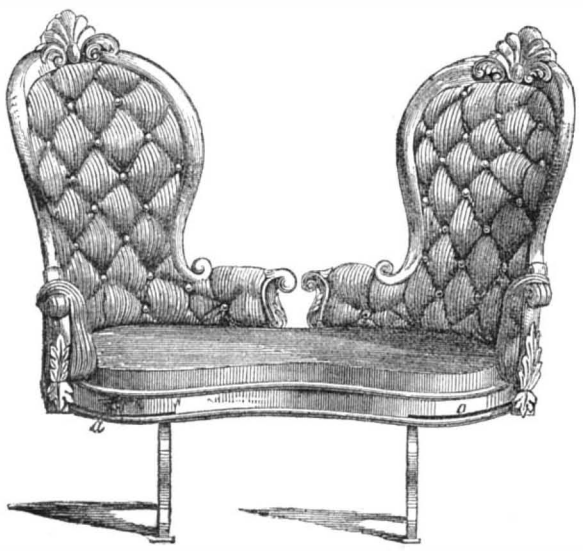
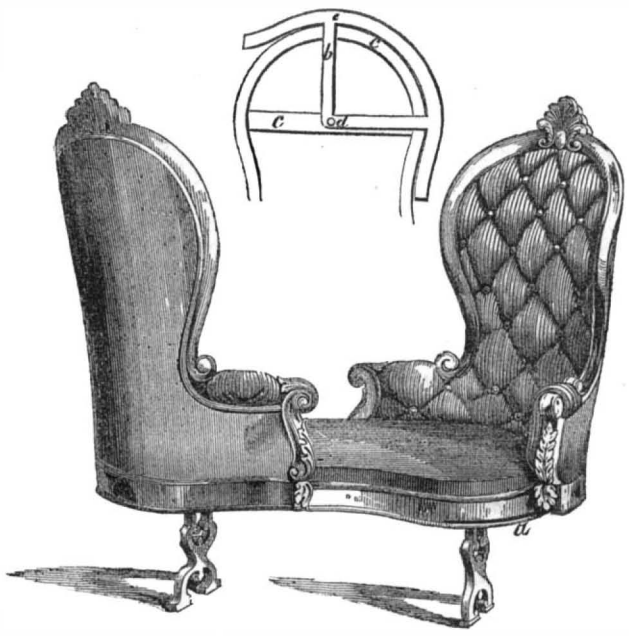


Figure 2.



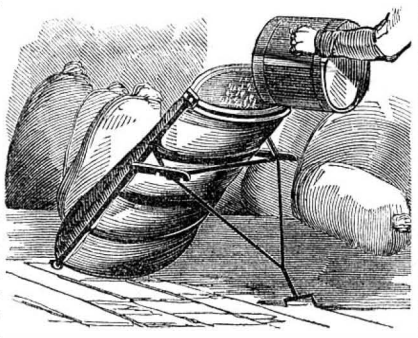
The accompanying engravings are a front view (fig. 1), a perspective view (fig. 2), and a small plan section of the manner in which the backs are constructed, attached, and operated. The improvement is the invention of C. P. Bailey, of Zanesville, Ohio, who has taken measures to secure a patent for the same.

The chair has two backs, one for each passenger on the seat, as is now the custom with railroad chairs. The leading features of it, however, are quite different from the common railroad chairs, the backs of which fold over on pivotted levers, while the backs of this chair do not fold over at all. It has the same advantages, however, as the folding back, and embraces some others. When it is desired that the backs of this chair should be changed from one side to the other of the seat, according to the direction of the train, or for any other reason, they are merely pushed round horizontally. Each back is separate, and secured to a metal quadrant, *b*, in the small plan view. This metal quadrant is secured on a stout pivot, *d*, which is secured to a cross-bar, *c*, that forms part of the frame of the seat, *c*. The two arms of the quadrant rest on the rim of the seat bottom, and they are secured at the outer end, *e*, to the lower edge of the back of the chair. In the figures, 1 and 2, there is a circular slot, *a*, in which the quadrant moves, to allow the backs to be moved round from one side to the other. The backs can be placed near to one another, or they can be moved to the ends of the seat, so as to form a tete-a-tete sofa. As an improvement in railroad seats, and as an improvement on sofas for ordinary purposes, it is certainly one which recommends itself. The bottom of each back sits quite snug to the rim of the seat, and the slot, *a*, is not perceived unless closely examined. As the two arms of the quadrant piece, *b*, rest on the frame of the seat at their outer ends, no strain comes upon the ends of the arms, and the weight of a person on the seat is a counterbalance to any pressure on the back. The seat is a beautiful and comfortable one; it is simple in construction, and, so far as our judgment and taste go, we like it.

We believe that all our readers will, from the above, understand its construction and operation.

More information may be obtained, by letter addressed to the inventor.

The Bag Holder.



This engraving is a perspective view of an apparatus for holding up a bag and keeping its mouth open so that a man or boy can fill it up quickly without having another person to hold the mouth stretched while filling. It is composed of two side pieces or supports of wood or metal with an oval band or hoop at the top having hooks on it at three points. The bag can have loops sewed on it, or it can be hooked around the hoop, and its mouth kept open. There is a back standard consisting of two metal arms united at the foot, which has a broad base, or a prong, on it. This standard is shaped like a V and braces the two side supports. It is secured by hinges or by pins to the two side supports to allow the apparatus to be folded up and carried about under a person's arm. It can be made light and strong, and in many places where grain is threshed by a machine on a field, it must be very convenient—in fact it is useful in all places where a bag has to be filled—and as such we think it is worthy of the attention of our farmers. We never saw an apparatus like this in our country, nor do we know that one has ever been made, but many of our farmers are handy enough with tools to construct them for themselves—the engraving will be sufficient, along with this description; to guide them.

Other Scientific Discoveries may Supersede Steam.

In speculations like these, the probable, if not certain progress of improvement and discovery, ought not to be overlooked; and we may safely pronounce that, long before such a period of time shall have rolled away, other and more powerful mechanical agents will supersede the use of coal. Philosophy already directs her finger to sources of inexhaustible power in the phenomena of electricity and magnetism. The alternate decomposition and recomposition of water, by electric action, has too close an analogy to the alternate processes of vaporization and condensation not to occur at once to every mind; the development of the gases from solid matter by the operation of the chemical affinities, and their subsequent condensation into the liquid form, has already been essayed as a source of power. In a word, the general state of physical science at the present moment, the vigor, activity, and sagacity with which researches in it are prosecuted in every civilized country, the increasing consideration in which scientific men are held, and the personal honors and rewards which begin to be conferred upon them, all justify the expectation that we are on the eve of mechanical discoveries still greater than any which have yet appeared; that the steam engine itself, with its gigantic powers, will dwindle into insignificance in comparison with the energies of nature which are still to be revealed; and that day will come when that machine, which is extending the blessings of civilization to the most remote skirts of the globe, will cease to have existence, except in the page of history.—[Lardner on the Steam Engine.

[The above extract from Lardner is full of importance as affording matter for deep reflection and investigation. He evidently has strong hopes of electricity superseding steam at some future period, and that the period is at hand. So may it be, is our heartfelt response. At the present moment steam is the giant power on land and water. It has proven to be a great blessing to the world. It may never be superseded by any other power, but no one can tell. There is room, however, for hoping that it may be supplanted, and electricity appears to be the force to which Lardener is looking to with joyful anticipation. The huge boilers, great bulk and quantity of coal required for steamships, prevent them from making long sea voyages; a cheaper power for propelling machinery would be of immense advantage to the whole human race. Dr. Page, who has been for ten years an Examiner in the Patent Office, and whose name is so highly associated with electrical discoveries, especially his improved electro-magnetic engine, has resigned his situation, and we believe he is going to devote more of his energies, talents, knowledge, and time, to the perfecting of his engine. Some have predicted that the hot air engine of Mr. Ericsson will supersede the steam engine, but this we do not anticipate, for its power is derived from the quantity of fuel consumed; heat from carbon is the power employed in the steam and hot air engines. The field for improvement is electro chemistry—it is boundless, "and clouds and darkness still hover o'er it." When shall we see steamships driven by thunder bolts?

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Lithography.

It is now fifty-six years since Aloys Senefelder, of Munich, Bavaria, discovered the art of Lithographic Printing. It was a stroke of genius—the reward of much toil, sleepless nights, and weary days. The inventor was one of those poor fellows—universal geniuses, with a clear simple head, and very light pockets. He was a fiddler, musician, poet, playwriter, and what not; but alas, everything failed to bring him in the cash. He wished to publish some pieces of music, but copperplates were expensive, and he thought he would try to etch them himself. He made a poor hand of it, for he burned his fingers and burned his plates with aquafortis, and he was almost in despair, for new plates he could not get. He was rubbing down some old plates with stones, to try them over again, but the stones were coarse, and scratched the surface; he bethought himself of some fine stones he had seen on the banks of the river Isere. With these he polished his plates well, and obtained such a fine smooth surface on his rubbing stones, that the thought entered the bright head of his, one day, to try and etch on one of them instead of copper-plate. For a while all his attempts were fruitless, yet he did not faint nor abandon his favorite idea, of being able to print with stone. One day he had succeeded in polishing up a stone very finely, and was intending to cover it with an etching ground. His mother came in for him to write down a list of the clothes taken by the washerwoman, who was about to depart. He had no paper; he could not go for it; the thought struck him to note down the articles on his polished stone with an ink which he had prepared, of wax, soap, and lamp black; he did so, and afterwards when he was going to wipe it off, the bright idea flashed through his German head to try what would be the effect of writing with this preparation on the stone, and then biting down with acid the surface not written upon. He was partially successful, and soon found out that, by merely writing with a greasy pencil on the stone, no acid was required,—the grand art was thus discovered. The principle of it depends upon the property of the stone to absorb grease and to absorb water, and in the grease repelling the water and the water repelling the grease. By writing on a finely polished stone, with a pencil made of tallow, black lead, and wax, any design, picture, &c., is all that is required to make the stone print the writing, figure, or whatever it may be, traced upon it. No engraving, etching, &c., are required. All that has to be done is merely to write backwards on the stone, the figure, or whatever it may be, that is desired to be re-produced by printing. The stone, after being traced, is placed in the press, and with a clean sponge and water its face is rubbed over, the parts traced with grease repel the water, the dry parts absorb it; a roller with ink on it is then rolled across the face of the stone, and then the parts traced with the greasy pencil absorb the ink while the moist parts repel it. The paper is then laid upon the stone, and run through the press; the paper, by the pressure, is made to lick up the ink on the tracing, and thus receive the impression. There are a great number of nick-nacks connected with this art, which is one of the most beautiful ever discovered. It has greatly improved within the past ten years. We do not know when it was introduced into our country, nor by whom, but it is not many years since. It will never supersede printing with types for books and papers, but it has superseded copper-plate printing on paper in a great measure, and will yet banish it entirely. It is more flexible than copper-plate printing; hitherto, however, the printing, that is, "the art of taking the impressions," owing to the necessity of moistening the stone before every single impression is taken, the work has been and is a very slow business. Here there is an ample field for improvement.

All lithographic presses are worked by hand; not one has been made, so far as we know, self-acting, to be driven by steam power. The man who invents an improvement in the lithographic art, whereby the printing press will be rendered self-acting and capable of being driven freely by steam power, will confer a benefit upon a most beautiful branch of the printing art, for which he should be highly honored and richly remunerated.

Pure Art and Ornament.

Pure art is honorable in whatever person it is represented. The man who designs a temple, and he who engraves a simple wood-cut with taste, are to be respected if they contribute to the cultivation of mind by a love of the beautiful. To do so, men must have high emotions of soul, this is as requisite for the production of pure art, as food is for the body. There is poetry in painting, music, and sculpture, and all should seek enjoyment in the beautiful, which has its foundation in the inner spiritualism of the virtuous soul. And who would not respect the arts as exhibited in those provinces of human industry, the useful manufactures? They contribute to the comfort and consequently to the elevation of man. But there is a spurious kind of art and manufacture, which the refined soul dislikes; it is to be seen in those ornamental fooleries with which many persons decorate their persons, their houses, their lands. On some mantel-pieces are to be seen deformed specimens of animated nature, embodied in costly china, or displayed in glittering gold. Costly vases encumber floors, apparently as receptacles for dust, and tables are covered with curious wares, which have not even the merit of amusing. Fantastic upholstering, gaudy china, costly lace, flaming colors, make a prodigious show in some mansions, but pure art is not there. Pure art does not consist in the expense nor labor bestowed upon certain articles; no, a true work of art is something in itself. Does it show a true appreciation of art to have the human figure embodied in the kitchen tongs or poker; what respect has that man for pure art who places the human form divine on a spittoon, or the figure of a lovely woman, like the mother of our race before she tasted the forbidden tree, flaunting on the door of an omnibus? Must the head of a man be stuck upon the handle of a tea-pot, or that of a woman plastered upon the lid of a tobacco box? Give us pure art without degradation, by associations of a low and inferior character. There are those who have a soul for the beautiful, and who can detect a vulgar taste covered with silver, or enrobed in the lace of Brussels. The mind is not satisfied with the merely useful, or all the arts and trades might go a-begging. We find pleasure in the manner the atmosphere is struck with a string, and the heart is thrilled when the voice in song gushes forth, bearing the beautiful thoughts of the soul. Man was made for more than mere eating and drinking; he was made the highest specimen of Divine art on earth. Should he then not love pure art, and endeavor to cultivate it? To those who have a sacred regard for the finest specimen of divine sculpture, we say, "be ye rich or poor, do not show a vulgar appreciation of pure art, by sprinkling human forms over your lamps, household appurtenances, calicoes, tobacco-boxes, umbrella and door handles; if you have a love of the truly beautiful, you will have a sacred regard for *pure* art.

The Sturgeon.

This fish is quite plenty in many of our rivers, especially the Hudson; and so plentiful and famous was it at one time in old Beaverwick, that the New Yorkers gave it the name of "Albany Beef." Codfish, for the same reason, often gets the name of "Boston Turkey," but if the fish is good the name is nothing. It is our opinion that we have too little respect for the sturgeon, at least, he is not made so much of with us as he is by other nations. The sturgeon has a wide range over this globe. The rivers in the north of Europe are famous for them, especially the Volga, the Don, Dnieper, and Danube. He is the only creature that is eaten almost entire in Russia—he is all prime meat, and being devoid of hoofs, hide, and bones, consequently he is a much more valuable creature than the land animals which have such appendages belonging to their carcases. Out of the roes of the sturgeons a very valuable preserved food named "Cavier" is prepared. It was a famous dish among the ancients. The roe of the sturgeon is of great weight, and there is a peculiar kind made from a species of small sturgeon in Russia, which is entirely monopolized by the potential Czar. The fresh roes and melts of sturgeons are eaten in Europe with apple and raisin sauce well spiced. Fresh sturgeon is stewed with wine, vinegar, and some salt, and then it is said, by its lovers, to be a dish fit for any epicure. It is often eaten with sauce made up of sugar, ginger, pepper and cloves.

The skin and fins of the sturgeon are employed to make isinglass, and not a particle scarcely is lost by the Germans and the Russians. It is a fish not much eaten or known in New York City, and is not very famous among our people. Those not accustomed to it say, when they first eat it, "they do not like it," this taste is acquired like that for tomatoes. We never saw a person yet who could eat them with relish the first time they were tasted. The Albanians say it all lies in the cooking; for some parts of the fish taste like veal, and other parts like young pork, if cooked in the right manner. This may all be; one thing is certain, the sturgeon is not regarded as belonging to the aristocracy of codfish in our commonwealth. His character, however, may improve; we hope it will, for there can be no doubt of his respectability as a most palatable table friend, when well dressed by a friendly cook.

The Way of Explosions.

On the 6th inst., the boiler of the steam tug boat, Charles Devlin, exploded in the East River, this city, and John Willoby was so severely scalded that he died in the hospital from the effects of his injuries last week, on Monday. The coroner's inquest resulted in the following testimony and verdict: Wm. Renard, the pilot of the boat stated that the firemen, at 2 o'clock on the morning of the 6th inst., began to get up steam contrary to the order of the engineer; that the engineer gave him orders to have the steam up at seven o'clock, as the boat left at half past seven.

The deceased was sleeping in his hammock over the man-hole plate on the promenade deck. Witness called the deceased and the other deck hand, and they both answered him; then he went round to the larboard side of the boat, where he found the fireman fast asleep. After waking him, he went into the engine room and shut down the safety-valve.

The furnace doors were shut at the time, and the engineer was not aboard. Witness then went ashore and did not alarm the others on the boat. Did not know how much steam there was up. Thinks the fireman was in liquor. The boiler was an old one. There were four cocks of water on. It took about half an hour to raise the steam on that boat.

Upon this and other testimony, the jury rendered the following verdict:—"That John Willoby came to his death by the bursting of the steam chimney of the steamboat Charles Devlin, on the 6th inst., arising from the criminal neglect of the fireman, John Lewis."

There is always most criminal neglect, or something else at the root of every explosion, if it only could be found out, as it has been in this case. There is a most reprehensible criminal neglect on the part of the people and the authorities of this city, in respect to steam boilers which are employed in public buildings. There are steam boilers in many of the buildings in this city, 20 or 30 feet long, and from 7 to 8 feet in diameter, placed under the side walks, and carrying steam of a very high pressure. It is a wonder to us that more explosions do not take place. Nobody seems to have any business with looking after such dangerous magazines of power.—The Hague street explosion has passed away without having produced a remedy for the prevention of such accidents in our city.—Some of the carriages of the corporation authorities may get blown up some day, while running through our streets.

Bill to Prevent Explosions.

The Bill which has been before the Senate as prepared by Senator Davis, and noticed before in our columns, for the safety of life, from explosions, &c., and especially applicable to the navigation of our Western waters, has passed the Senate, and we expect it will also pass the House of Representatives at an early date. It has been considerably modified from what it was, as originally prepared. A committee of gentlemen, connected with the Mississippi steamboats, were sent from St. Louis to get the original Bill altered in some features. Senator Davis said he was much obliged to them for the information they had imparted to him. We sincerely hope that it will lead to the prevention of many steamboiler explosions on the Western steamboats. The Association of Boatmen in the West, must do their duty in carrying out the provisions of the Bill, or it will be a dead letter. There are many good laws on our statute books, which are worse than if they had never been enacted, because they are not enforced.

Spiritual Rappings.

Some weeks ago we received a small work by the Rev. C. H. Harvey, a Methodist clergyman at Kingston, Pa. We have taken time to read it during the moments we could spare from other studies. The author writes well, but not profoundly, in our judgment. The work is a defence of "the spiritual manifestations." In case some of our readers may not know what the "spiritual manifestations" are, we will tell them that it is believed by this Reverend gentleman to be a new dispensation from heaven in these latter times, whereby the spirits of departed human beings can, through some living person called a "medium," hold communion with the living. We have read a number of other publications by those who profess to believe in the "spiritual manifestations," none of which contained five lines of sense without some nonsense. It grieves us not a little to know that this delusion has unhinged so many of our people. It is a great pity to see clergymen and others, instead of going "to the law and the testimony," going to "the peep and the mutter," for heavenly consultation. In this work there is a revelation from the spirit world, by the spirit of the brother of the clergyman, who, he says, became his guardian spirit; it tells him that all the planets in the solar system were visited by him, and that they are all inhabited by responsible and immortal beings in a probationary state. We, at least, humbly beg to decline receiving this as a message from the spirit world or heaven. A great deal of the revelations from the spirit world, are given in this book; to us they are the emanations of minds diseased on one point. They are all very silly: this is the only true term we can use to express our opinion about them.

We do not like to use hard words, respecting any work written by a sincere man, however far wrong he may be, unless he is morally reprehensible. Learning, sincerity, and profession are no evidences of a man being correct. Cruden, the celebrated author of the Concordance of the Bible, was often beside himself, so was Cowper the poet, and Charles Lamb, and with respect to this modern delusion of "spiritual manifestations," many good, able, and sincere people, we have no doubt, have been led astray. There are some connected with this delusion, who, we believe, are great impostors—miserable deluders and deceivers: we do not allude to any of Mr. Harvey's circle. There are two classes of spirits, it seems, now at work communicating through mediums—good and bad ones. This has always been the case, only the spirits lately have begun to rap and make tables roll, while heretofore they only were able to affect the mind by an unexplainable influence, which might be called "suggestive." We hope the Rev. C. H. Harvey will soon be restored to his right mind, and all those sincere misguided persons who are under the same delusion.

Salt in Iowa.

We learn from the Dubuque (Iowa) Tribune, that specimens of beautifully crystallized salt were recently discovered about two miles southwest of that town, by some men. In grading the road-track, the earth was removed from some rocks, in a crevice of which the salt deposit was found. A piece weighing upwards of 100 lbs. was taken out, and it is believed that a salt spring exists at no great distance from the locality of this crystallization, and that the water flows from it to the Mississippi by some heretofore undiscovered channel. The specimen taken out was of excellent quality and remarkably clear.

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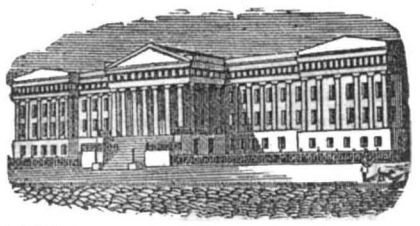

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JULY 13, 1852.

MACHINES FOR TONGUEING BOARDS—By Samuel Albro (late) of Buffalo, N. Y.—I claim, in combination with flaring stock, substantially as described, the arranging of a series of cutters therein, so formed as to take the shearings from the sides and shoulders of the rebate. substantially as described, and this I claim whether said cutters have a double or single graduation, so that I attain the result set forth, by substantially the arrangement and combination described.

[This patent has been assigned to G. W. Beardslee, Esq., of Albany.]

INSTRUMENT FOR DRIVING NAILS IN DIFFICULT PLACES—By Seth P. Carpenter, of Milford, Mass.: I claim the instrument, as constructed, of a combination of a tube, two or more springs, one or more holding points, and ramrod, and made to operate substantially as specified.

CAST IRON CAISSONS—By J. P. Duffey, of Philadelphia, Pa.: I claim the method of bracing rectangular or other shaped metallic boxes, by means of the diagonal braces and rods, the braces and rods being arranged in the manner substantially as set forth.

THRESHING MACHINES—By J. G. Gilbert, of New York City: I claim the manner described, of constructing skeleton threshing cylinders, viz., by bolting or welding to the arms, which are attached to the shaft, any suitable number of branches, which, together with the arms, present their edges to the line of motion, and are provided with serrated ends, substantially in the manner and for the purpose set forth.

SHINGLE MACHINES—By Furman Hand, Jr., of Chicago, Ill.: I claim so combining and arranging the riving knife, and the shaving knives, in their ways, as that after the shingle has been separated, or nearly so, from the bolt, it will be carried forward by the carriage to the shaving knives, where it is finished, and so that the riving knife shall remain stationary, until the shaving knives have taken firm hold of the rived shingle, the whole being operated by the means substantially as described.

I also claim, in combination, the double carriage, one moving on top or over the other, and so arranged that one shall feed up the riven shingle to the knives, and the other shall carry back the bolt, at each operation of the machine, sufficiently far to cut off one shingle therefrom, the whole being operated substantially as described.

RAILROAD CAR BRAKES—By J P. Martin, of Philadelphia, Pa.: I claim the method of raising the forked or cane hook end of the jointed bar, to a horizontal position immediately in advance of the pin, at the upper end of the rubber levers, so that it will act upon the same, when forced back, and enabling it to detach itself and descend to an inclined position, when it is desired to back the train, by means of the friction wheels, whose shaft moves in slots, and whose peripheries rest on the car wheel shaft, or axle and chain, attached to the shaft of the friction wheels, and passing over the roller above the jointed bar, to which it is attached, arranged, and operated as described, whether said jointed bar be attached to the sliding bar represented, or ordinary bumper of the car.

CHURNS—By John McLaughlin, of Goshen, O.: I claim mounting the churn tub or barrel, composed of two sections, and containing a grate at their junction, within a clasp band united to pivotted pendent bars, whereby, through means of a lever, the barrel is so operated as to present its ends uppermost, the one after the other, by which the milk or cream is carried up by one section, and allowed to descend through the grate, as described.

SHINGLE MACHINES—By R. L. Noblet, of Haverford, Pa: I claim making the double racks in segments, one of which is stationary, and the other adjustable, for the purpose of cutting shingles of various thicknesses, at butt and point, with the same racks, substantially as described.

BENZOLE LIGHTS—By Henry M. Paine, of Worcester, Mass.: I do not lay claim to any particular apparatus. But I claim the mixture of alcohol, benzole, and water, with such proportions of water as shall render the liquid milky in appearance, and passing air through the same, substantially as set forth; I do not confine myself to the exact proportion of water named in the specification, but to cover the results named.

CORN SHELLERS—By Wm. Reading, of Washington, D. C.: I claim the described combination of a toothed or flanged cylinder, with an enclosing cylindrical casing. of such proportions respectively, and so arranged the one within the other, as to leave an amount of space between the two, which will cause the cobs and ears to clog and accumulate therein during their passage through the same, and form an elastic self-adjusting bed for the spirally arranged teeth or flanches of the shelling cylinder to act in concert with, in place of the stationary bar, or rest, which is employed in all other cylindrical corn shellers.

CAST-IRON WHEELS—By H. H. Scoville, of Chicago, Ill.: I claim the double curved arms interlacing one another, and uniting the opposite edges of the rim and hub, substantially as specified.

BEDSTEAD FASTENINGS—By I. A. Sergeant, of Hamilton, O.: I claim forming the tenon portion of a bedstead joint, by catch-studs or pins, having hands projecting rectangularly from tangs, so tapered and notched that, by being slipped forcibly past each other, they can be made to interlock within a socket drilled for them, and be made, by their thus interlocking, to resist any tendency to be drawn out from the rail, and by the compressure of their heads, to prevent the rending apart of the fibre of the tenon, and can be made of such dimensions that a pin of adequate strength can be inserted within the limits of an ordinary bedstead tenon.

ALARM CLOCKS—By J. S. Turner, of New Haven, Ct.: I claim the combination of the double notched cam, with the locking apparatus, with their appendages, and giving more than one alarm with once winding, when the whole is constructed, arranged, and combined, substantially as described.

COTTON PRESSES—By Jacob G. Winger, of Vicksburgh, Miss.; I claim the arrangement and combination of the screws, with the top and bottom cross beams of the frame, and the cross head of the follower, by which the follower and bed plate are made to press the bale from top and bottom, and the distance travelled by the follower towards the bed plate, is three times that of the frame (to which the power is applied) over the screw.

Secondly, I claim making the weight of the press an auxiliary power, by resting it entirely on the lower screw, so that in pressing the bale. the frame is travelling down the screw as on an inclined plane.

SEED PLANTERS—By Joshua Woodward, of Haverhill, N. H.: I claim the hooked rod, constructed and arranged substantially as set forth.

DOOR LOCKS—By M. R. Stephenson, of Boston, Mass. (assignor to Edwin Holman): I claim the combination of the cover plate and its arbor, with the slide, for carrying the bitt plate, and a contrivance applied to the same arbor, and made to actuate the said slide and bitt plate, all constructed and made to operate together, substantially as described.

And I also claim the improvement termed the circular arc lip, in its combination with the cover plate, and made to project down between the bitt plate recess and the tumblers, when the bitt plate hole or entrance of the cover plate uncovers the bitt plate recess, either in whole or in part, all substantially as explained.

RE-ISSUE.

MACHINES FOR TONGUEING BOARDS—By Ransom Crosby, Jr. (assignee of Ransom Crosby: assignee of H. D. Edgcomb), of New York City. Patented originally April 13, 1852: I am aware that Harvey Law has described, in his patent of 10th April, 1849, a mode of tongueing in which two sets of saws are arranged in a frame, with the cutting teeth opposite, and cutting in one plane on opposite faces of the board, none of which we desire to claim; but I claim the employment of two independent sets of independent cutters, arranged in parallel planes, in parallel stocks, with an open space between them, so as to cut on the edge of the board, all in the manner substantially as described, whereby I have the advantage combined, of freedom from clogging, and the facilities of adjusting the stocks and cutters for sharpening, setting and inspection.

DESIGNS.

PARLOR STOVE—By Wm. F. Pratt & Geo. W. Bosworth, of Milford, N. H.

PARLOR STOVE—By S. D. Vose, of Albany, N. Y.

HAT AND UMBRELLA STAND—By Chas. Zeuner, (assignor to M. Greenwood & Co.) of Cincinnati, O.

PORTABLE GRATE—Apollos Richmond (assignor to A. C. Barstow & Co.) of Providence, R. I.

Taking Wild Animals.

In conversation with a gentleman who had crossed the plains to California, he informed us of a curious mode of shooting the antelope. His party had often tried to shoot one, but they were so timorous they never could get within shooting distance of them. They met a party in which there was a U. S. Officer, and to him mentioned the difficulty of getting a shot at an antelope. Oh, says he, it is the most easy thing in the world, I will show you how to do it. Next day they saw a troop of antelopes, and the U. S. officer approached as near as he thought was prudent, before they would take flight; he then laid down on the ground, waved a handkerchief, and made some antic movements. The antelopes having their bump of curiosity excited, approached gradually nearer and nearer to see the row, until they were within 30 rods, when bang went the rifle and down came a fine buck. By manœuvering in this manner with a troop of antelopes, the party never afterwards had much trouble in alluring them to within the range of the deadly American rifle.

There are various modes of enticing and capturing insects, fishes, and animals.

The naturalist catches many kinds of night moths (males only) by exposing a light in his room.

Fishes are enticed by light; and a Frenchman invented a complex machine, with lamps, reflectors, and nets, to catch them. Salmon are caught by one man holding a blazing torch close to the water, and another striking the mesmerized fish with a spear; this is the plan practiced to take fish in many of our lakes.

Birds are also thus attracted, as in the practice of lowbelling; where the birds are wakened by a bell, and lured by a flame into a net.

As to animals, it seems a providential thing, that, while the fiercer animals, as lions, tigers, &c., are afraid to approach fire, many other kinds, useful for food, are attracted by it.

The Chinese catch rats by holding a light before their holes, and killing them when they come to look at it.

In reference to curiosity in general, all animals are inquisitive, and attracted by any peculiar action or sight to which they are not accustomed, and which is not so violent as to drive them away. The Laplanders kill reindeer by laying themselves on the ground, and throwing themselves into various postures, when the animals come close enough to be shot with an arrow.

The Persians kill deer by dressing themselves in the skin of one, or hiding in bushes and imitating the challenge cry; another male hears it, answers it, and rushes out, when he is shot with an arrow.

Deer are often allured in the forest by a torch of pitch pine, and then shot.

In Russia they kill wolves in the following manner:—They go out into the forest on a moonlight night with a sledge, behind which a whisp of straw is dragged by a rope twenty yards long. They have a live pig in the sledge with them, and nip its ear to make it squeal. The wolves flock together, mistake the straw for the pig, dash at it, and are shot from the sledge.

In some countries swallows are trained to fly about rooms and kill the flies, &c. In some countries people keep a cat, owl, or a hawk tied up in a garden to protect quantities of seeds, peas, or fruit. If one could train hawks to fly about or over the fields of grain, and fasten four or five to posts, so that they could be seen, it would be a great protection.

The fondness of rats for oil of rhodium and oil of anniseed, of cats for valerian and catmint, is well known, and often entices them to their destruction. Rubbing the boots with anniseed is said to be a common trick of dog-stealers to entice dogs. It is said that by rubbing the hands with assafœtida fish will let you take them out of the water. The dislike of bulls and turkey-cocks to red colors, might, where these creatures are wild, be made a means of procuring them. There are some things used to drive rats away from premises, or to antipathize them. It is said that common mullen, and also garlic bulbs, sprinkled in stacks, or put where they frequent, will drive away rats and mice; elder and walnut leaves, both in their natural state and as a decoction, will prevent the attacks of flies, both on animals and meat, and drive them away.

Enamels for Metals.

Enamels are composed of coloring matters, which for the most part consist of metallic oxides, and, secondly, of fluxes, or vehicles for the color, consisting of vitrifiable substances, such as silicates, borates, or boro-silicates, in different proportions. The color of an enamel results either from the color of one of its constituents, or is a result of the chemical combination of the constituents; in the one case, the coloring of the matter is simply mixed with the flux, or, if the flux combine with it chemically, it does not affect its coloring property; in the other case, the flux has a chemical action on the coloring matter.

Gold, silver, and copper are the metals which are usually enamelled. The enamels used for the purpose must have their point of fusion below that to which they are applied; it must be higher for copper and silver than for gold. They must be very fusible when used alone; but when they form a ground for other enamels, they must be capable of resisting a high temperature without fusing.

Enamels are opaque or transparent; those which are used as a ground are opaque; those which are used in painting may be transparent or opaque, but the latter are usually preferred, especially for silver and copper.

Enamelling on metals is more difficult than on glass and porcelain. The presence of an oxidizable metal usually produces a re-action between the two bodies; the enamel dissolves the oxide which forms on the surface of the metal at a high temperature, and becomes colored thereby; or the enamel may itself oxidize the metal, in consequence of the oxide of lead contained in it, in which case the lead is reduced, and the color is destroyed. Hence gold admits of being enamelled better than copper and silver: but if gold contain copper, some difficulties may be experienced. On copper and silver the enamel generally undergoes some change, at least in the layer which is in contact with the metal. If the enamel is transparent, the defects are apparent; but if opaque, and the surface smooth, the defects are concealed. Copper and silver are sometimes first covered with an opaque enamel, and afterwards with one that is transparent.

The objects to be enamelled are usually prepared for the purpose by the jeweller.—They may be entirely or only partially covered with enamel, according to the design. In the one case there must be a projecting edge to retain the enamel, and in the other certain hollows engraved according to the design.

All the enamels which are applied to metals have a vitreous, transparent, colorless base. The following are recipes for transparent enamels:—

Silica, 3 parts; minium, 5 parts; nitre, 1 part; borax, 1 part.

Opacity is given to enamels by the addition of a certain proportion of—1, oxide of tin, 2, phosphate of lime, or 3, oxide of antimony. The oxide of tin is first combined with the oxide of lead before the enamel is made. For this purpose, metallic lead and tin fused together, and raised nearly to a red heat; the oxide which forms on the surface is removed as fast as it is formed; heat is again applied, to render the oxidation more complete. It is next stirred up in water to precipitate the minute portions of metal which have escaped oxidation, and in this way the oxide can be separated.

The proportions of tin and lead which are to be thus fused together vary according to the composition of the enamel into which these oxides enter. A quantity of oxide of tin equal to about one-tenth of the weight of the enamel will render it of an opaque white. The proportion of lead is variable according to the kind of enamel required. For this purpose the following alloys will be found useful:—

Lead, 5 parts; tin, 1.

In the following recipes for opaque enamels, the oxide of one or other of these alloys is used instead of the oxide of lead in the transparent enamels:—

Silica, 3 parts; nitre, 1 part; lead, 5 parts: tin, 1 part; borax, 1 part.

The above enamels are those adapted to gold. The more fusible enamels required for copper and silver may be formed by the addition of one-eighth of their weight of calcined borax. By the further addition of this substance the fusibility of enamels may be increased at pleasure.

Colored enamels may be formed either opaque or transparent, by melting up with any one of the above enamels a certain proportion of some metallic oxide, as indicated in the following recipes:—

BLUE ENAMEL.—Take opaque or transparent enamel, 10 parts. Oxide of cobalt, 1 to 2.

GREEN ENAMEL.—Opaque or transparent enamel, 6 parts. Oxide of chromium, 1 to 2.

ANOTHER GREEN.—Opaque or transparent enamel, 30 parts. Binoxide of copper, 1 to 2.

VIOLET ENAMEL.—Opaque or transparent enamel, 30 parts. Peroxide of manganese, 1 to 2.

YELLOW ENAMEL.—Opaque or transparent enamel, 6 parts. Chloride of silver, 1 to 2.

PURPLE EMAMEL.—Opaque or transparent enamel, 12 parts. Purple of Cassius, 1 to 2.

BLACK ENAMEL—Transparent enamel, 15 parts. Oxide of copper, oxide of cobalt, and oxide of manganese, 1 to 2 parts of each.

Lace Manufactures.

The manufacturers of silk laces at Nottingham, attribute the dullness in their trade to the laws of France, which rigidly exclude from that country the lace manufactures of England. The exquisite taste displayed by the Paris milliners renders them the arbiters of fashion for the world. If the English laces could be introduced into Paris, the consumption of the article would improve the style, and the French milliners would use English laces in their fabrics, and thus open three markets, viz.:—France, England, and the United States. The latter take their cue from Paris, and unless fabrics are received in Paris as the style to be worn, the law of fashion elsewhere rejects them with scorn.

American Silk Manufacture.

There is a silk manufactory at Newport, Ky., which turns out some very fine specimens of goods, giving another proof of the facility with which American ingenuity can adapt itself to any branch of industry, under sufficient encouragement. The factory has been in operation about four years, and it manufactures cravats, handkerchiefs, and vestings of excellent body, soft in texture, and which will no doubt wear well.

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TO CORRESPONDENTS.

O. F. M., of Canada—No person can manufacture malleable iron without a thorough practical knowledge of the business. If you intend to enter into the manufacture you must employ some one fully conversant with its details.

W. D., of Vt.—You could not obtain a patent on the saw. Tuttle's invention is substantially the same thing. Other references could be given.

T. H., of Pa.—The battery you speak of is no test for the rendering of a magnet capable of sustaining only 6 lbs.; let the same magnet be made with coarse wire, and it will not sustain two pounds. We do not know the attractive power of any battery according to the size of the plates. There is a most excellent paper on Electro Magnetism in the American Chemical Dictionary; there is also a small work by Snow Harriss. The Dictionary is sold in Phila. We have never seen a cylinder like the one you speak of. There is an electro-magnetic ore separator, illustrated in Vol. 5, Sci. Am. (Cook's.)

W. R. McF., of Ala.—Your letter on Silver Plating we handed to Mr. Alfred Barnard, No. 198 Fulton street, for his attention, as he is a dealer in the article.

A. J. S., of N. Y.—Your improved hook for whiffletrees is doubtless new and patentable. It appears to be a good device.

R. S. O., of Conn.—It is quite difficult to decide whether your apparatus would have the effect claimed for it. Its novelty we cannot question, but its utility must become a subject of experiment.

J. H. O., of N. H.—You cannot get a patent for pipes made of Roman cement, for pipes have been made of that substance, and it is public property.

J. H., of N. J.—We have carefully examined the figures and description of your boiler, we must say that it does not produce a favorable impression on our mind. You could not possibly get it to operate on large boilers. The same object has been obtained by attaching a float in the boiler to a rod, which operated a valve in the supply reservoir, and which was opened and closed by the rising and falling of the water in the boiler. In Vol. 2, Sci. Am., there are a number of illustrated plans for accomplishing the same thing.

N. H. R., of Mobile.—The reason of your not getting your paper was because the Postmaster had ordered it stopped. We have re-entered your name.

J. L. G., of Ind.—The $2 you sent would not pay for the book ordered by you, so we have credited the whole amount towards your subscription.

S. B., of N. Y.—You have the correct ideas as to the meaning of the quadrature of the circle. Perhaps the "Telegraph" would prefer to commence with the next new volume when we will offer them a conditional exchange.

I. H., of N. J.—It will be difficult for you to establish any patentable novelty on your washing machine. We do not perceive any. So many patents already exist on such devices that it is risky business to make an application, and the opinion of any one cannot be relied upon conclusively.

W. P. Y., of N. Y.—We cannot tell what your invention may merit without a sketch and description, or model. Indicating the rates at which a train is moving might gratify the curiosity of the passengers, but its utility might be doubted by the company. The other point of your letter is a mere matter of individual taste. It should not be a "stumbling block."

J. B., S., of Wis.—You could not obtain a patent for the chisel and die, as they do not constitute a combination in a patentable sense. We do not remember to have seen a machine for turning irregular forms like yours. As to the question of infringement no one can pronounce satisfactorily, a jury might disagree with the opinion of able experts.

J. P., of ——.- The cider mill was never published in the Sci. Am. It belongs to Nathan Chapin, of Syracuse, N. Y.

F. B. H., of Ind.—Your letter of the 26th ultimo came safe, covering $60, which we have placed to your credit. Engravings would cost from 10 to 15 dollars.

R. A. J., of Va.—By addressing Messrs. Taylor & Maury, Washington, we presume you can obtain such a work as you refer to. We notice they advertise a few copies for sale.

C. M. B., of Texas—F. H. Smith, of Baltimore, Md., can furnish more information upon the points named in yours of the 16th ult, than any individual we know of.

F. De C., of Fla.—We have referred your letter for attention to a manufacturing house here.

H. B. R., of Pa.—The evil of drying the sumac in the sun is owing to the high heat, which expels some of the tannic acid along with the moisture; this is stated to be a fact; we have never proved it.

G. C. A., of N. Y.—If there be nothing exactly like your engine, we do not see a point in it to claim; the modification is not of a patentable character.

E. W. D., of Mass.—We cannot promise our services to any one to exhibit articles at the Fair; we are often applied to for such purpose, and find it necessary to decline.

S. P. C., of Ohio—It is not new to hang mowing sickles after the manner suggested in your letter of the 9th inst. We recollect to have seen a model of one something like a year since. We cannot perceive any novelty in the arrangement, although no doubt it is good.

G. T., of Me.—In No. 22, Vol. 6, of the Scientific American, you will find a wagon wheel constructed upon essentially the same plan as yours. The differences not a patentable one.

Elam Griggs, of Oriskany Falls, N. Y., having lost an arm, wishes to procure the best artificial one to be had. Should any of our readers know of a good article, they will oblige us by communicating with Mr. Griggs, as we are unable to furnish him with the information.

J. B. W., of N. J.—Whether such an invention be practicable or not, it has long been in use on some railroads.

J. M. S., of Ill.—We have not been engaged in the sale of the article for a long time, and cannot tell where they may be had.

Money received on account of Patent Office business for the week ending Saturday, July 17:

T. B. S., of N. J., $30; J. D., of N. Y., $30: J. A., of N. Y., $30; W. M., of Ga., $30; D. R. R., of N. Y., $30; J. T. P., of Mass., $30; F. & W., of Conn., $50; J. F. M., of Pa., $20; B. & B., of Ct, $15; M. R., of Me., $30; L. D., of N Y., $50; McD. & Bro., N. Y., $10; F. C. S., of L. I., $25; D. & J., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, July 17:

J. F. M., of Pa.; P. B., of N. Y.; S. I., of N. Y.; F. C. S., of L. I.; D. & J., of N. Y.; L. D., of N. Y.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

The Post Office Laws do not allow publishers to enclose receipts; when subscribers receive the paper regularly they may consider their money as received.

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In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all but 4 numbers, price, in sheets, $1.

Of Volume 6, all; price in sheets, $2; bound, $2,75

Of Vol. 7, all back numbers at subscription price.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying.

Patent Laws, and Guide to Inventors.

We publish, and have for sale, the Patent Laws of the United States. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. Price 12½ cts. per copy.

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American and Foreign Patent Agency

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Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

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PATENT DRAWING BOARDS,—23 by 29 inches; with scales of degrees in inches, minutely divided. Also paper fastener attached, and T rule. Complete for $10. Sent by Express. Direct (post-paid) to H. W. CHAMBERLIN,
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STEAM ENGINE AND BOILERS—Superior Portable and Stationary Engines, with Ayer's Patent Improved Boilers, of any size required, will be furnished to order by the patentee. These boilers occupy but little room, can be set up without brickwork, and will make more steam with the same fuel than any other boilers. E. AYER, Patentee, Norwich, Ct. 44 3

SHERRY & BYRAM'S AMERICAN CLOCKS, FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c. REGULATORS FOR JEWELLERS, and other styles, designed for Banks, Offices, etc., also Astronomical Clocks. The undersigned have introduced such improvements in the construction of their clocks, as to be enabled to warrant them the most durable and accurate (highest grade to vary less than two minutes in twelve months), of any others now in use. Glass dials for illumination furnished at short notice. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

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THREE STEAM BOILERS FOR SALE—One of Ericsson's improved tubular 20 horse-power for $650; one upright tubular six horse-power for $275; one second-hand tubular boiler, four horse-power for $150. LAPHAM & WELCHMAN,
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AARON KILBORN, 4 Howard street, New Haven, Ct., manufactures Steam Engines, Shafting, Presses, Fan Blowers, Lathes, Planers, Artesian Wells, Chain and Force Pumps, Pipe, Heating Apparatus for Houses, etc. 42 10*

TO INVENTORS—The subscribers will enter into arrangements, on the most reasonable terms, for furnishing Drawings, Patterns, and Models, believing that they have one of the most thorough and scientific men, in that line of business, to be found in New York. Their object is merely to fill up time, they not having sufficient work of their own to keep him in steady employment, and do not like to have him leave for fear they could not obtain his services when required. Apply at Dunlop's Manufacturing Emporium, No. 36 Gold street.
41 13* FRASER & EVERITT.

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MARYLAND INSTITUTE FAIR—The Board of Managers of this Institute will hold the Fifth Annual Exhibition in the Grand Saloon of the Institute Building, in the city of Baltimore, commencing on the 4th day of October next. The great facility thus afforded for a splendid display of American Manufactures, they hope, will be a sufficient inducement for the Manufacturers, Mechanics, Artists, Inventors, and others throughout the United States, to contribute such specimens of their industry, skill, and ingenuity, as shall be alike honorable and creditable to the mechanical genius and refined taste of the country. The Hall will be open for the reception of goods on Monday the 27th Sept. next, from which time to Thursday night, Sept. 30, articles intended for competition and Premium must be deposited. The balance of the week will be devoted to the reception of articles intended for exhibition only, free of charge. After which time depositors will be subject to a charge of 50 cents to $1. On Monday, Oct. 4, at 7 o'clock, P. M., the Exhibition will be open for the reception of visitors. Circulars containing the regulations and arrangements established by the Standing Committee on Exhibitions, can be had by addressing (post-paid) JOHN S. SELBY, Actuary of the Maryland Institute, by whom any information required will be promptly given. 39 7

PATENT ALARM WHISTLE.—Indicators for speaking pipes, for the use of hotels, steamships, factories, store-houses, private dwellings, etc. etc. This instrument is intended to supersede the use of the bell, being more simple in its arrangement, more effective in its operation, and much less liable to get out of order, being directly connected with the speaking pipe, it requires no lengthy wires in its use, which are continually getting out of order or breaking. There have been several hundreds of them fitted up in this city and vicinity with the greatest success. They can be attached to pipes, which are already fitted up without damage to buildings, and for much less than the cost of a bell, and warranted to operate. The public are invited to call and examine them at the factory of the patentees.

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IRON FOUNDERS MATERIALS—viz.: good American Pig Iron—grey, mottled and white; No. 1 Scotch Pig Iron, of favorite brands. Pulverized Sea Coal, Anthracite Charcoal, Soapstone, and Black Lead Facings. English and Scotch patent Fire Bricks—plain, arch, and circular, for cupolas. Fire Sand and Fire Clay. Iron and brass moulding sand; Core sand and flour; always on hand and for sale by G. O ROBERTSON, 135 Water street (corner of Pine), N. Y. 40 6*

TO STEAM ENGINE BUILDERS, OWNERS, and Engineers.—The subscriber having taken the agency of Aschroft's Pressure Gauges, would recommend their adoption to those interested. They have but lately been introduced into this country, but have been applied to many of our first-class river and ocean steamers, and on several rail roads, on all of which from their simplicity, accuracy, and non-liability to derangement, they have given the utmost satisfaction. CHAS. W. COPELAND, Consulting Engineer, 64 Broadway, N. Y. 43 5*

BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

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LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.
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LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
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PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 lbs., price $600. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 39 26*

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

TRACY & FALES, RAILROAD CAR MANUFACTORY—Grove Works, Hartford, Conn. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 26tf

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

NEW HAVEN MANUFACTURING COMpany, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 45tf

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SCIENTIFIC MUSEUM.

(For the Scientific American.)

Electric Batteries.

[Concluded from page 352.]

Mr. Smee, admiring the Kemp arrangement, with his usual sagacity, proposed that, although it might be inferior to the plate form for general purposes, still it might be employed for using up the residues of the plates; this would also recover the mercury which had been used in amalgamating the plates. On this he constructed his Odds-and-ends Battery. He discarded the perforated plate, and substituted one of his platinized plates, which was necessarily placed vertically to permit the gas to escape.

Despairing of making a profitable use of the plate batteries, Mr. Green determined to give Mr. Smee's Kemp battery a thorough trial. Several of these batteries were constructed, but they proved of little efficacy, notwithstanding the great advantages of platinizing the negative plate; the action was both feeble and fugitive.

The small action we thought might be referable to the great average distance of the vertical negative plate from the horizontal positive plate. A plate was then formed of a multitude of small plates, which brought the average distance within half an inch of the positive; but, after all, it was evident that there was some grand violation of the principles of electro-chemistry.

It now occurred to me that the deficient action was owing to the sulphate of zinc formed on the amalgam remaining there, by its superior gravity, and after saturating the water in its immediate vicinity, interposing a film of dry salt between the zinc and the excitant; we now placed the amalgam near the top of the vat; this worked much better, being constant though feeble. It was observed in time, by using this last form, that the sulphate of zinc was removed only from the edges of the amalgam, but in the centre it lay in a bed of crystals. We saw that however large the positive plate might be, it was virtually small, for the edges alone were active.

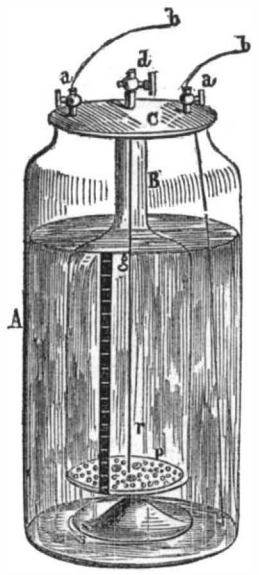
We now saw a necessity for a circulation or a continual agitation of the acid-water. This was produced in the vertical plate battery by the ascent of the hydrogen and descent of the sulphate; but the means of effecting this in the horizontal arrangement were not easily seen.

After making hundreds of experiments, and wasting as many days and dollars, I produced the form of the mercury support represented in figures 1 and 3. I was delighted to find that I had succeeded in producing a constant washing of the positive plate. From the engraving, it is evident that the sulphate of zinc flowing down over the sides of the mercury support, and being prevented from flowing down the hole, O, by the height of the edge or collar around it, will destroy the equilibrium between the sides and centre of the liquid, and produce a circulation in the direction represented by the arrows. Fresh acid is constantly carried to the amalgam, while the exhausted fluid, moving down the sides of the vat, occupies the bottom of the vat, where the salt at length crystallizes. I have had the salt to form to the depth of four inches in the bottom of one of the batteries. As the zinc salt is removed to the bottom without commingling to any great extent with the unconsumed acid, the exhaustion is one of quantity instead of quality; unlike the case with all other batteries, here we have the size of plates and strength of the excitant remaining constant, giving elements of constancy, almost equal to those in the constant battery of Prof. Daniell.

The muslin diaphram will never be injured by the acid, provided it is not put in while the mixture is hot, and is not left in the air so as to get partly dried—it cost me years to learn this.

I have called this apparatus the "Reservoir Battery," because it is a perfect instrument for converting zinc acid and water into galvanic power. From the experience of many years, spent in making and using galvanic batteries, I can say that this is the best form for convenience and economy, and also for constancy and power; with a gauze plate one foot square, I have deposited one pound of copper per twenty-four hours, on an electrode 9 by 12 inches. This battery is free from the nuisance of amalgamating and soldering, or screwing on zincs. The liberated hydrogen is easily carried out of the apartment by means of a flexible pipe and a wooden cover fitted to the vat so as to be made sealed by touching the liquid in the vat.

Fig. 4.



My voltameter battery is another form of Mr. Kemp's apparatus; this, as its name imports, is used for measuring the electric action, which it effects by collecting the gas evolved from the perforated plate. As represented in figure 4, its construction is evident at a glance. A is a glass jar fitted with a heavy leaden cap, C, from which depends a tubulated receiver, B. Near the bottom of B is a perforated silver plate, *p*, suspended by a silver wire, *r*, which is fastened to the cap, C; the plate, *p*, is concave below, with three large holes near the wire, to let the gas through, which is liberated on the under side; this plate should be well platinized. In the bottom of the jar, A, is a ring of mercury, S, containing bits of zinc. No portion of the zinc or amalgam should be vertically under the receiver, B, for all the gas collected in the receiver, B, should be evolved from the plate, *p*; if any bubbles should rise from the amalgam they should pass up between A and B; the form of the bottom of glass jars will bring the amalgam in the right place, if too much mercury is not used. From the binding cup, *a*, on the right of the cap, *c*, passes a wire to the amalgam; this wire must be well defended by gum from the acid, (gutta percha covered wire answers admirably) and the binding cup must be insulated from the cap, C; the binding cup on the left of the cap being in contact with the cap, will be in metallic connection with the plate, *p*, and the battery will be thrown in action by interposing a conductor between the binding cups, *a a*.

When the circuit of the battery is completed, gas will be evolved from the plate, *p*, and being collected by the receiver, B, and measured by the scale, *g*, it becomes an unerring index to the amount of chemical action performed in the circuit. As all the chemical actions in a voltaic circuit are in proportion to the atomic numbers of the substances acted on, we need measure but one substance produced by the electric action to ascertain the amount of any other. The atomic weight of gold is 200, of silver 104, of copper 32½, of hydrogen 1; therefore, if one grain of hydrogen has been collected while gilding an article, it is certain that 200 grains of gold have been deposited; or, if in silvering them, 104 grains of silver. Forty-seven cubic inches of hydrogen weighs one grain—this is the basis for the formation of the scale. To make the scale on the receiver, a broad stripe is made with asphaltum varnish, down the side of the glass; when this is dry, two vertical lines must be drawn through the varnish, and a horizontal line for a zero mark. From the calculated cubical contents of the receiver, the depth which would be occupied by 47 cubic inches must be set off from the zero mark, this space should then be divided into 200 spaces, by drawing lines through the varnish, between the vertical lines—this gives the scale for gold; or if the scale is for silver, then 104 should be the dividing number; or several scales may be made on the same receiver, the scale may then be numbered to read ounces, pennyweights, and grains.

When the receiver is full of gas, the acid-water will be depressed below the negative plate, the action of the battery will cease, until the stop-cock, *d*, on top of the jar is opened for the gas to escape; the rush of the liquid into the receiver, and its passage out, wash off the zinc salt from the amalgam; when the battery is used without retaining the gas, the action is feeble, and likely to cease in a few moments, which is referable to the lack of circulation in the exciting fluid.

This battery will be of very great use to electro-platers, and I doubt not that before long every electro-gilder and plater will have one or more. Let us suppose that a plater wants to deposit one ounce (480 grains) of silver on a dozen tablespoons, the workman has the voltameter alone, or in circuit with more batteries, connected with the silvering vat. As soon as all the connections are completed, the voltameter begins registering the grains of silver deposited on the spoons. By merely looking at the scale, the workman sees the amount deposited, even to the fraction of a grain. Or if he wishes to leave the work, and insure so much, and no more, being deposited on the spoons, he blows in the stop-cock on the top of the battery, until the liquid is depressed to that point, which will leave the required amount to be deposited before the circuit will be broken by the efflux of the acid-water from the negative plate. I have often filled a vat with things before going to bed, and invariably found all right in the morning; in this way I got a good lot of silvering done after going to bed. Again, it is known that the quality of the reduced metal is dependent on the rapidity of the process, compared with the condition of the solution. Now this instrument will tell the operator how fast he is working—an ounce or a grain on the square foot per hour—which is of the utmost importance for durable plating. Had I not produced this battery, I never should have succeeded in making thick silver plates, superior in all the mechanical properties to silver plates made by the silversmiths.

I should not close this without stating that I do not claim the apparatus described and claimed by Prof. Page. When, in describing his apparatus, he stated that I used the same form, he had reference only to the general form and features—horizontal arrangement and collecting the gas. I had shown the apparatus I use to many scientific persons as my invention, and as Prof. Page had given a date to his work anterior to that which I had claimed, I felt it a duty to assume such position as would place me in a true light before the public, I therefore wrote him a note, calling his attention to my claims: not receiving an answer, I felt indignant at what I thought was an attempt to attach the wrong name to my work, and then wrote the denial, to which I referred above. I afterwards learned that the Professor had not received my note, and that my want of an answer was referrable to his being away—in New York—for, on his return, he promptly replied to me. I feel it my duty to say that Prof. Page preceded me in the use of mercurial flood batteries arranged for collecting the hydrogen.

Washington, D. C., June 29, 1852.

George Mathiot.

Cure for Dysentery.

A highly respectable and aged correspondent of the "Georgia Constitutionalist," gives the following recipe for the dysentery—though very simple, it has not failed, under his observation, for many years:—

"Take an equal quantity of sweet molasses, olive oil, and good West India rum, stir together and simmer over the fire, stirring whilst simmering until the decoction is well incorporated together; then take it off the fire but continue stirring until the mixture is quite cool. It is then ready for bottling or use. The dose for an adult, if the disease is very violent and system much reduced, is one table spoonful three times a day, morning, noon, and night—and if the attack is slight, one spoonful, taken at night, will have the desired effect. For children and young persons, in proportion to age; for infants, a teaspoonful is sufficient. It is also a radical cure for summer complaint in children. If the disease should be checked too suddenly, so as to occasion costiveness, reduce the dose, and use a little castor oil.

Silk Grass Handkerchiefs.

The N. O. Picayune of a late date, says:—"We yesterday saw a handkerchief made from the silk grass of Honduras, which, for fineness of texture and durability, far exceeds any linen we have ever seen. It is one of a number made in London from a sample of this very common grass in Honduras, Yucatan, &c., sent there by the gentleman who exhibited it to us as an experiment. The grass is a finer variety of that from which the hammocks in Central America are made, and it is thought, can be made an article of considerable export."

Food for Silk Worms.

The "Milan Gazette" says, that a woman named Theresa Ramos, has discovered, and proved by practice, that the plant called the centinode is as good a nourishment for silk worms as the leaf of the mulberry. She has raised a large quantity of worms, in sixteen days only, upon this plant, alive. Those, however, who have once tasted the mulberry, will not consent to be weaned from it, and it is necessary to bring them up exclusively on the centinode, if it is intended that they shall feed upon it.

Antidote for Strychnine.

A writer in the Texas Ranger gives an account of the successful treatment of some negroes, who had been poisoned with strychnine prepared for wolf's bait. Melted hogs lard was administered to them freely after they had suffered in great agony for several hours, and immediate relief was the consequence.

LITERARY NOTICES.

The Knights of England, France, and Scotland: by Wm. Henry Herbert, 12mo.; Redfield, publisher, Clinton Hall.—This delightful volume of legends is well calculated to afford pleasure to the reader, especially one who takes pride in chivalry, romance, and the events of stirring narrative. The author's prolific genius is bountifully manifested throughout, and it is seldom we have found more relief in a work of corresponding character. Our readers will remember that we have frequently referred to the excellent character of Mr. Redfield's publications—they are put forth in faultless style.

Female Patriotism—This is an essay by Elizabeth Wetherell, author of the "Wide, Wide World." The subject is a most important one: "How may an American woman best show her patriotism?" is the question asked; it is discussed with great force and ability. It is a neat little volume, with gilt edges, published by E. H. Fletcher, 141 Nassau street, this city.

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